

ELETTROCARDIOGRAFIA IN CARDIOLOGIA DELLO SPORT

**«Elettrocardiogramma nel soggetto sportivo:
tips and tricks per destreggiarsi nelle situazioni dubbie»**

Toso Elisabetta





Le onde del cuore

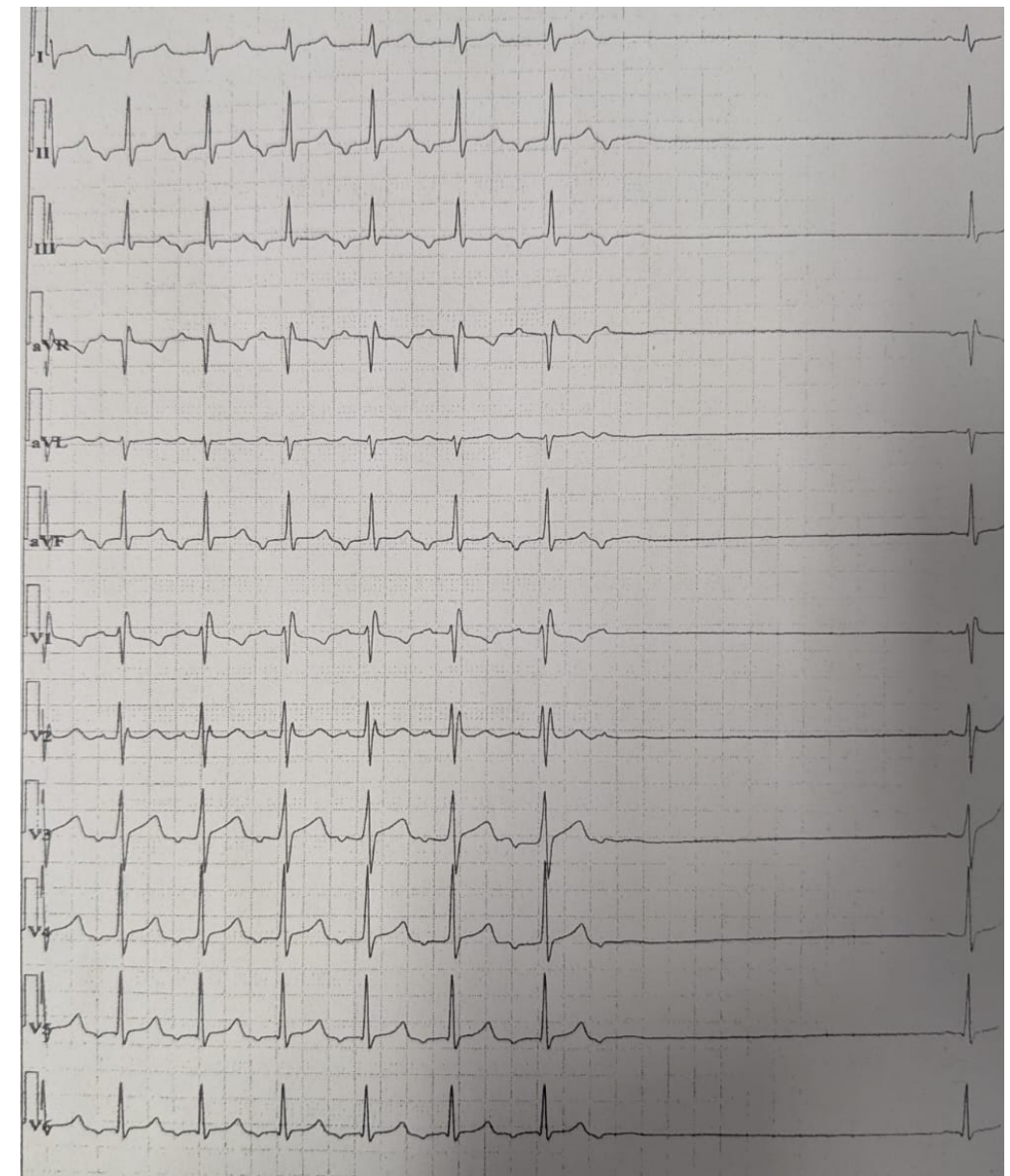
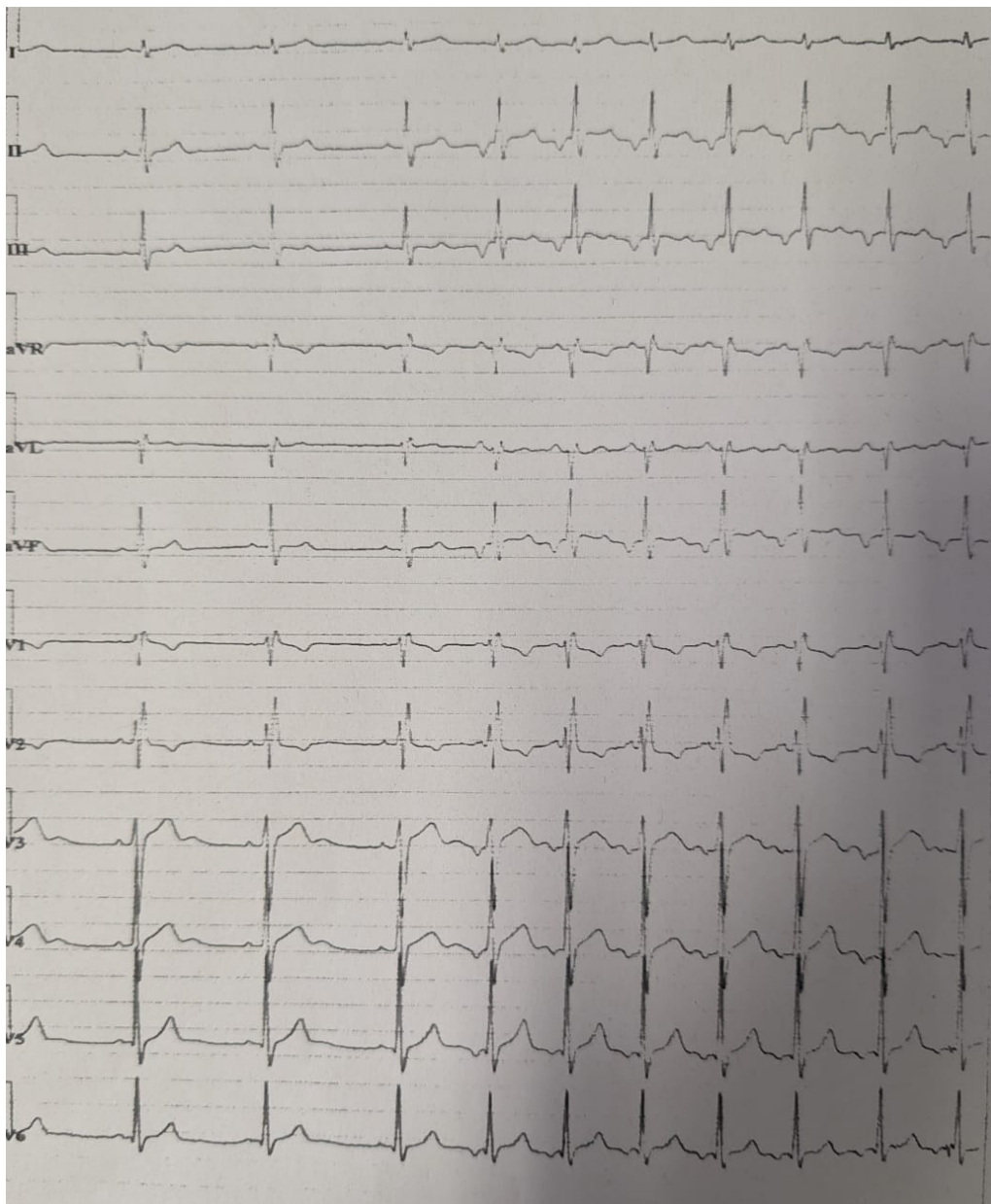
Non esiste un ECG senza un PAZIENTE

II EDIZIONE

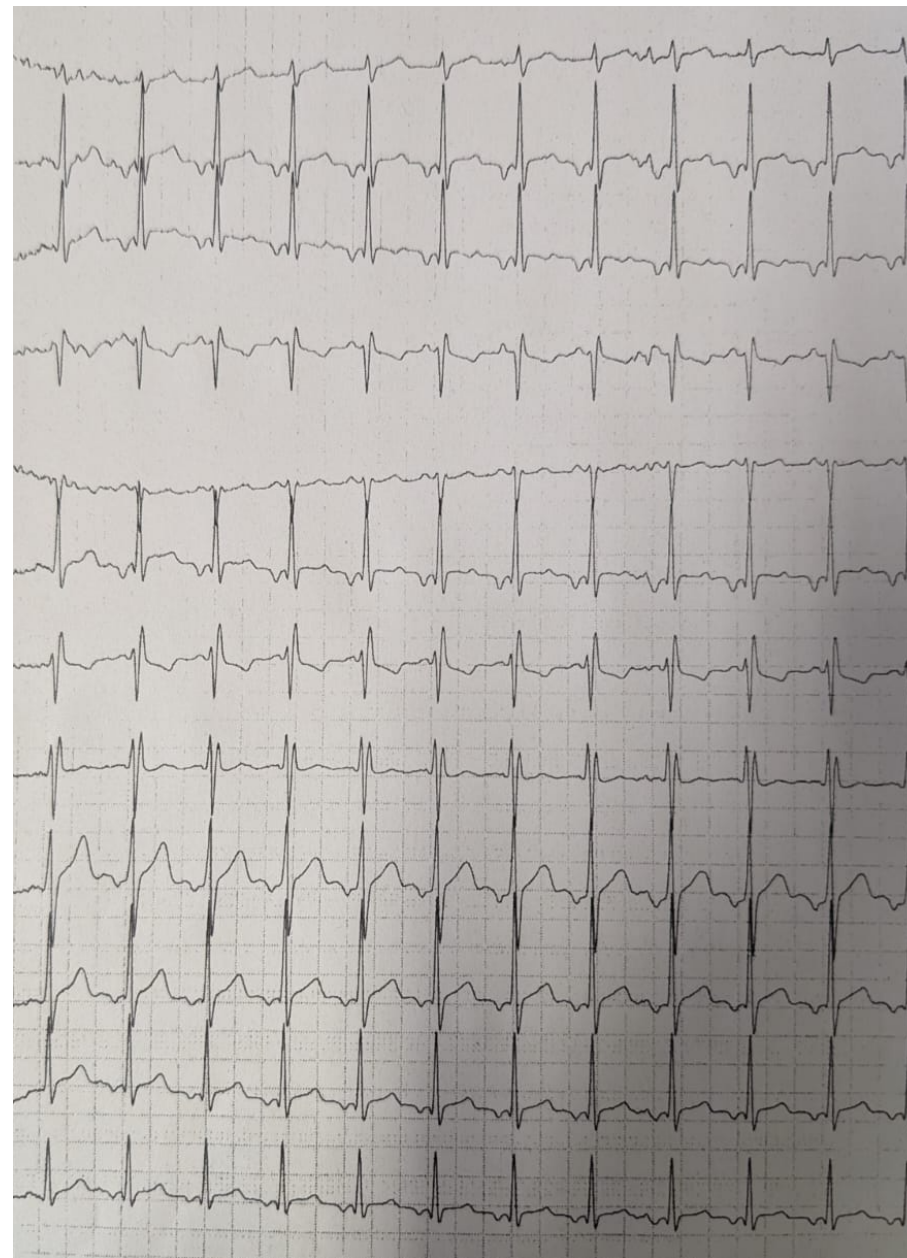
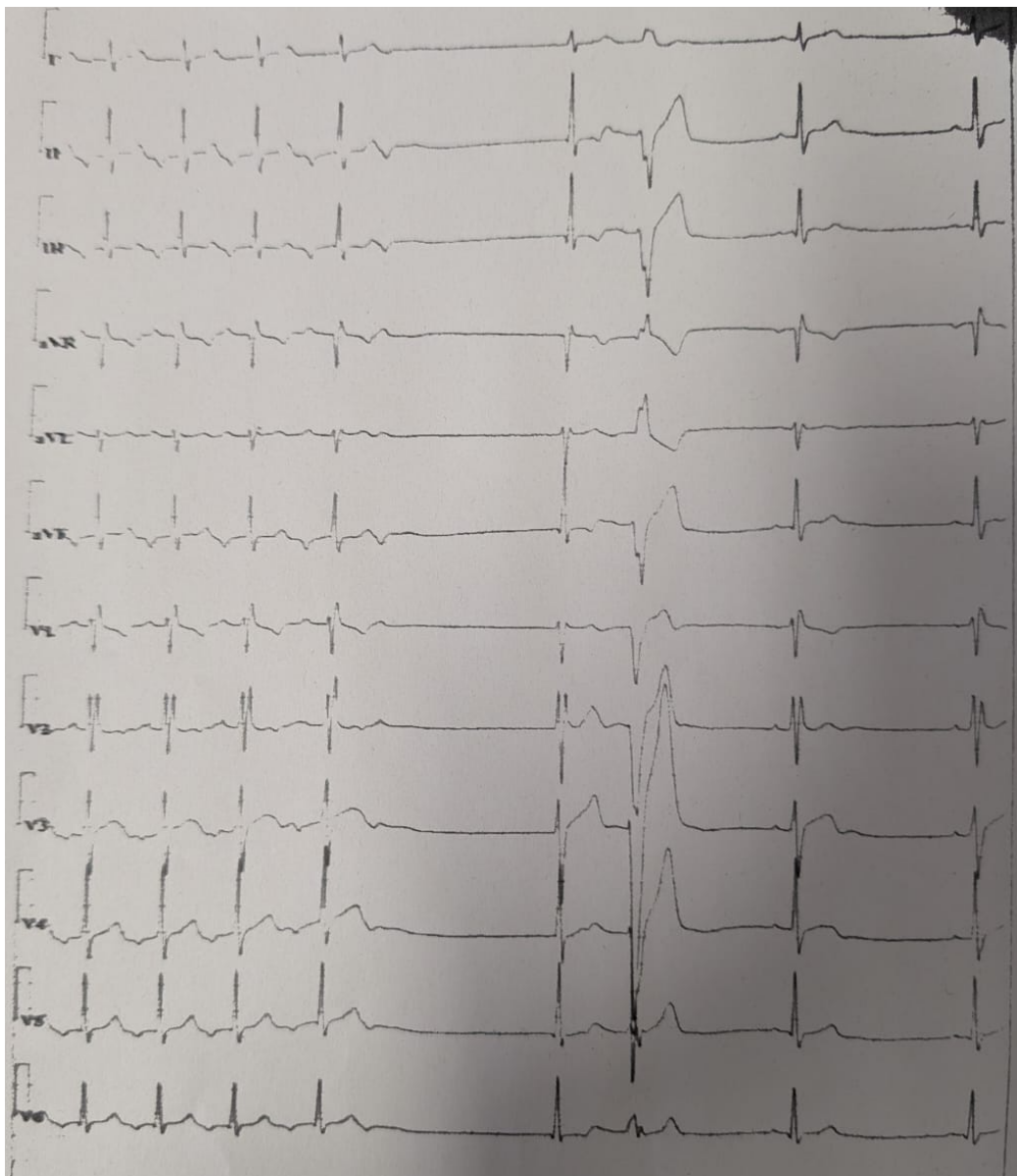
Tiziano Lenzi • Domenico Guosso • Laura Napoleone
Anna Maria Rusconi • Andrea Vicenzi • Paolo Villa



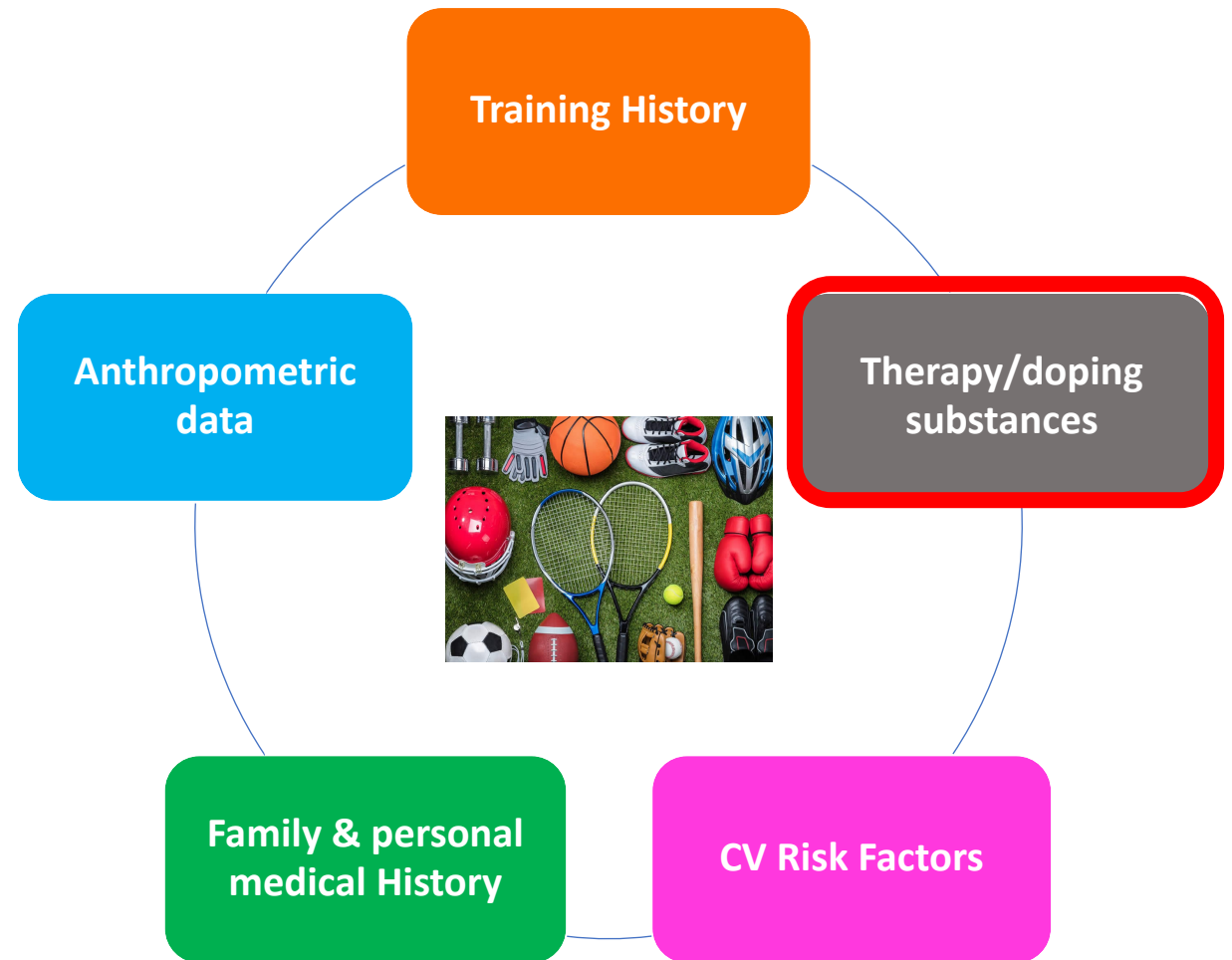
Edizioni Medico Scientifiche



Basket player, M, caucasian, 18 yo. Palpitation at rest.



The importance of Anamnestic check list



modified from Maestrini V. at al European Heart Journal (2024) 00, 1–3



35 ml, 50-80 mg caffeine

86 cases

41 cardiac events, median age 27.7 years

- **17 arrhythmias**
- **3 deaths**
- **1 aSD**

**In 13 a major pathology found
(LQTS, Cardiomyopathies, VHD)**





Volleyball player, female, 8 yo, caucasian.

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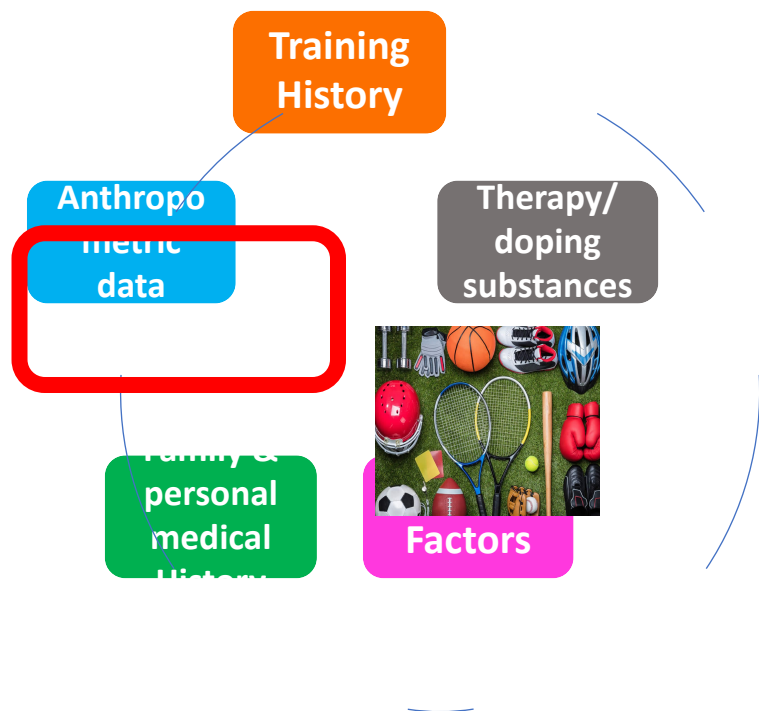


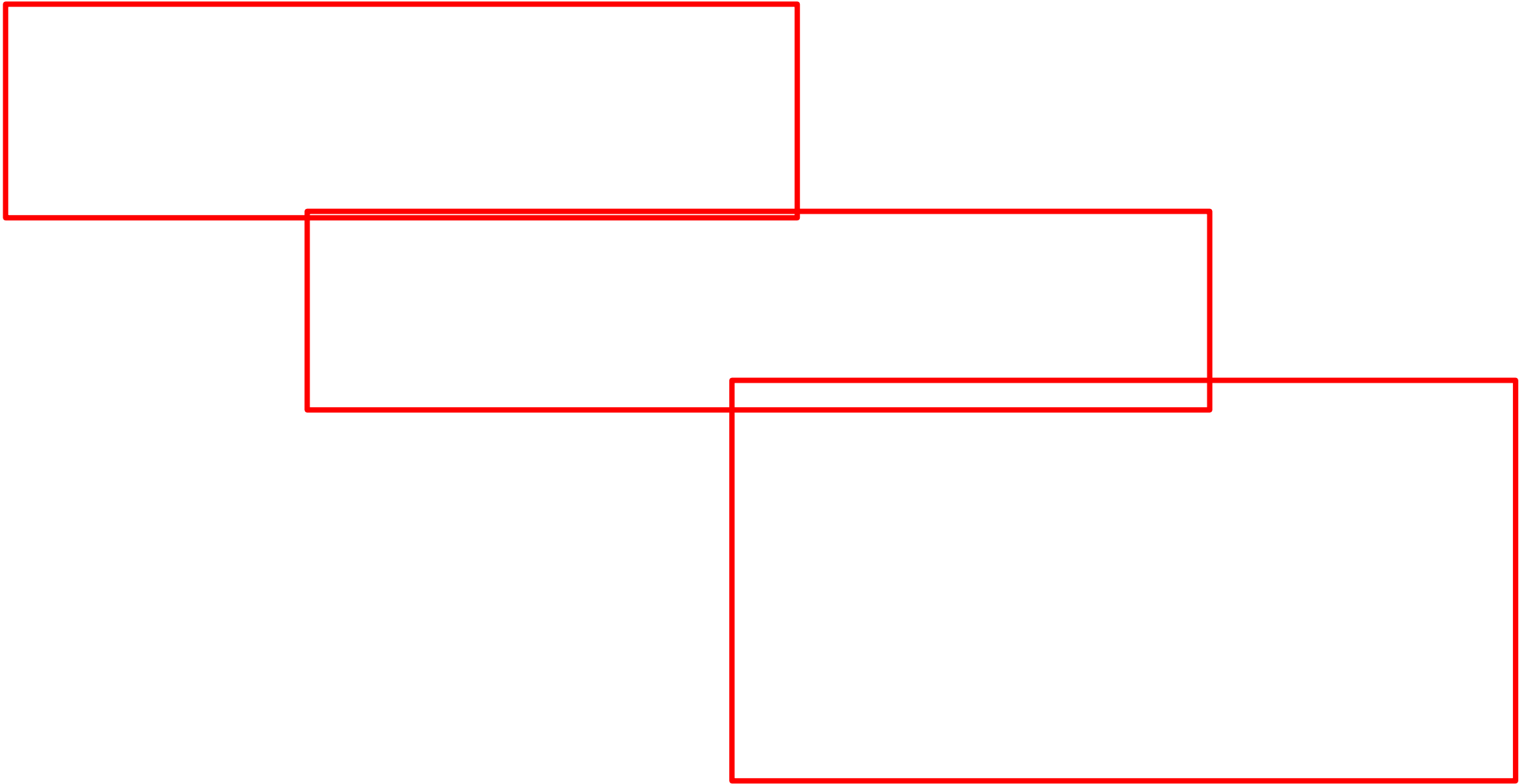


Volleyball player, female, 16 yo, caucasian.

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Volleyball player, female, 16 yo, caucasian.



Volleyball player, female, 16 yo, caucasian. Stress test

2022

Swimmer, male, caucasian, 35 yo



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2022

Swimmer, male, caucasian, 35 yo



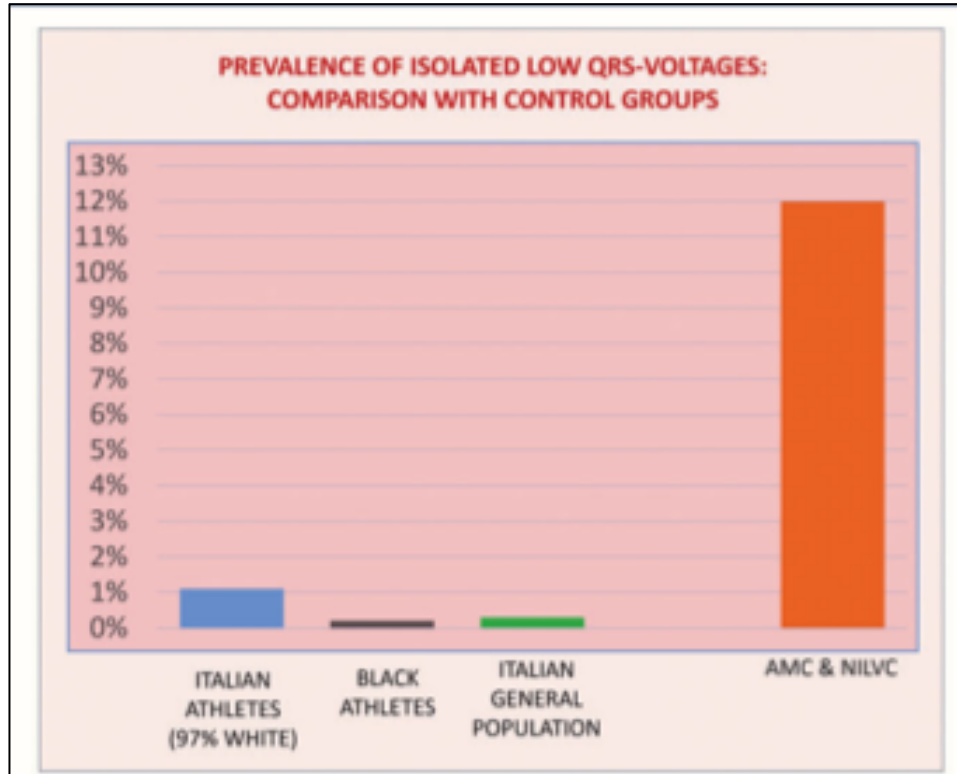
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The pivotal role of ECG in cardiomyopathies

Front. Cardiovasc. Med. 2023

Elisa Silvetti, Oreste Lanza, Fabiana Romeo, Annamaria Martino, Elisa Fedele, Chiara Lanzillo, Cinzia Crescenzi, Francesca Fanisio and Leonardo Calò*



Zorzi A. et al. Europace 2022

	DCM/HDCM	ACM	HCM
Depolarization abnormalities	fQRS; pathological Q-wave; occasionally LQRSV (e.g., in FLNC mutation)	fQRS; epsilon wave; SAECEG; TAD > 55 ms in V1; LQRSV in limb leads	Sokolow-Lyon (V1 S onda + V5 o V6 R dell'onda ≥ 35 mm); Cornell signs (SV3 + RaVL with a cutoff for LHV >2.0 mV in women and >2.8 mV in men); LQRSV (if extensive LGE); Q waves; fQRS
AV conduction disorders	First-degree and advanced AVB especially in some defined genetic form (e.g. involving LMNA gene)	—	—
IV conduction disorders	RBBB (rare); LBBB	RBBB-like pattern (ARVC); LPFB (ALVC)	—
Repolarization abnormalities	TWI in inferior, antero-lateral, and infero-lateral leads	TWI in right precordial (ARVC); TWI in lateral leads	ST strain (≥1 mm concave downsloping ST-segment depression); asymmetrical TWI in lateral leads; "pseudo-STEMI" pattern (ST-segment elevations in antero-lateral leads); deep T-wave inversion (≥2 mm) in infero-lateral leads; "giant T waves" (>10 mm), in the apical form of HCM
P-wave morphology alterations	Increased P-Wave duration and dispersion	—	Bifid and large P-wave (total duration > 110 ms); P-wave amplitude > 2.5 mm in inferior leads and > 1.5 mm in V1-V2

Swimmer, male, caucasian, 35 yo



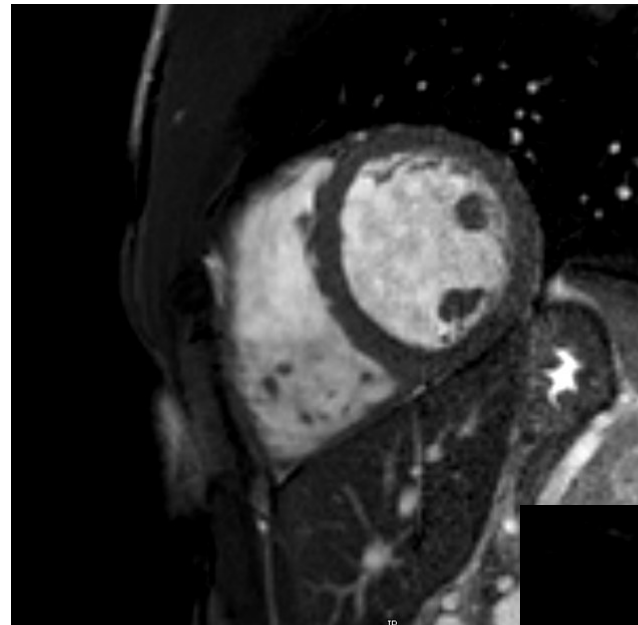
2026

Swimmer, male, caucasian, 35 yo

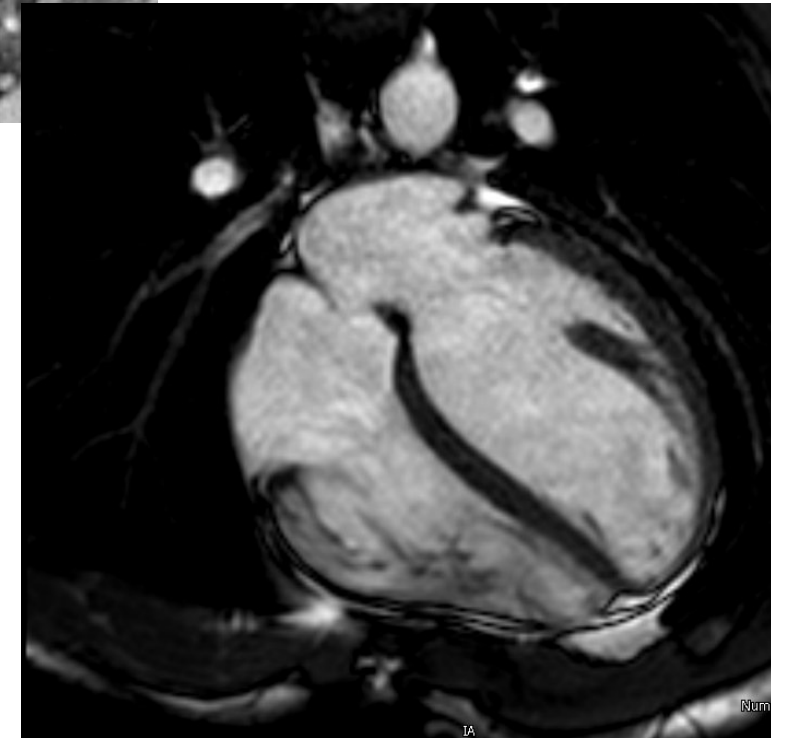


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GENETIC TEST!!



MY DOUBTS:

1- What is the resolution power of Cardiac MRI?

J Am Coll Cardiol Img 2014;7:254–63



MY DOUBTS:

2- How many years before electrocardiographic anomalies appear compared to structural changes?



MY DOUBTS:

3-Can subjects with a G+/P – develop ventricular arrhythmias ?



«L'Elettrocardiogramma
non mente mai!»

cit. Prof. Fiorenzo Gaita

